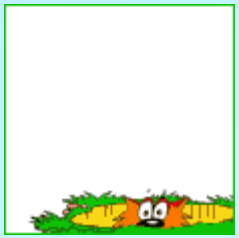
PHENIX

TECHNICAL SUPPORT 2011

PHENIX WEEKLY PLANNING

2/3/2011

Don Lynch



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This Week/Last Week:
(no planning meeting last week due to 2011 snow storm #7)

Controlled Accesss Last Wednesday

- VTX flow meter repair – successful
- 2 DC FEM's removed to be repaired and reinstalled next week during Scheduled maint access on Wed. 2/2
- MPC Replaced ASIC
- RICH board changed
- EMCAL cable strain relieved
- DAQ work
- BBC, ZDC, PC, MuTrig, RPC operational troubleshooting

Restricted Access Today

- MuTr work in MMN
- VTX thermocouple repairs
- RPC gas work
- DC board replacements
- Other work

Continue support for new detector commissioning

Continuing mechanical, electrical and gas system support for Run 11

Plan for shutdown 2011

Future upgrades support

Next Week

Continue support for new detector commissioning

Continuing mechanical, electrical and gas system support for Run 11

Continue planning for shutdown 2011

Future upgrades support

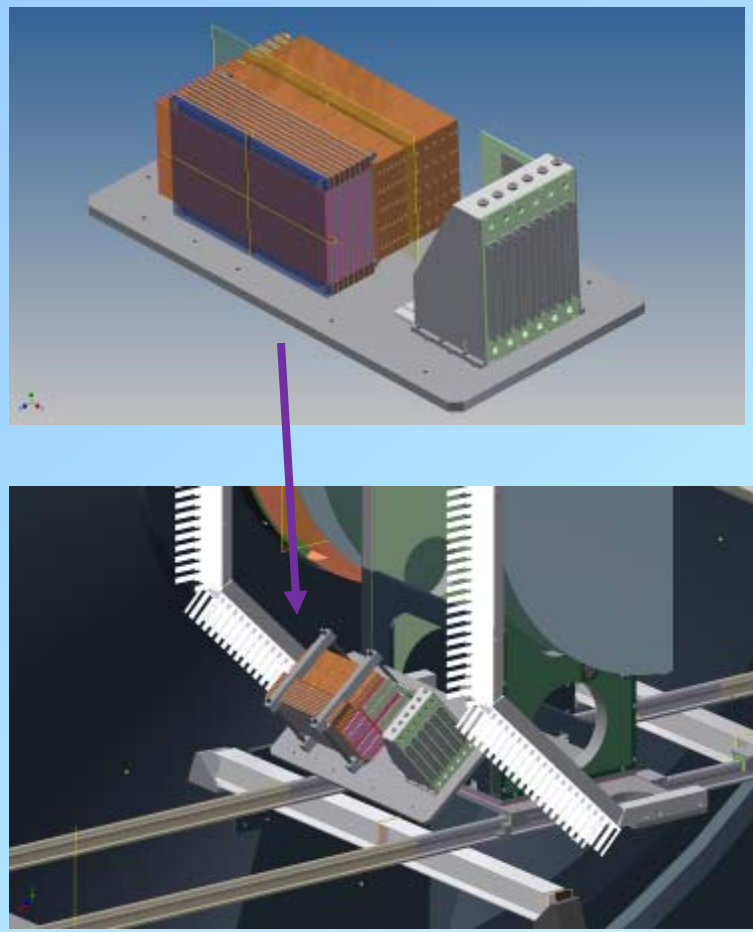
VTX chiller repairs

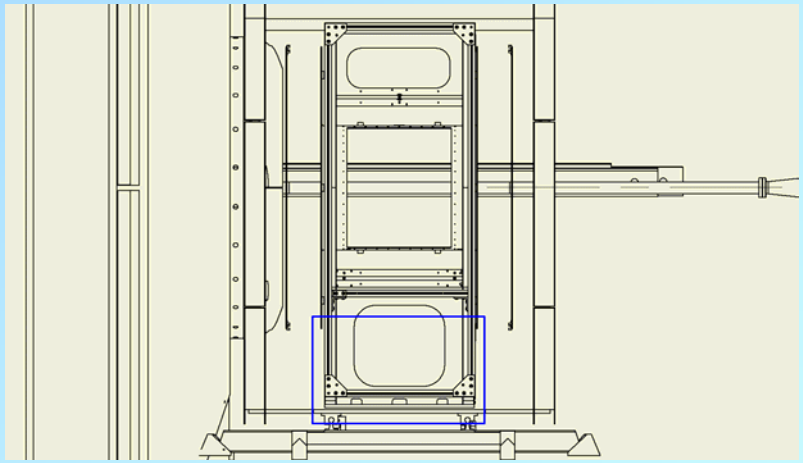
Next: Scheduled Maintenance Access: Wednesday Feb 16

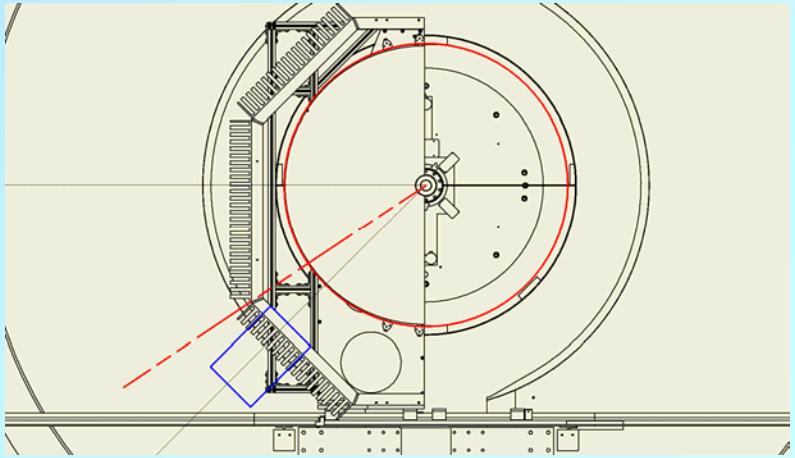
No Plans defined yet

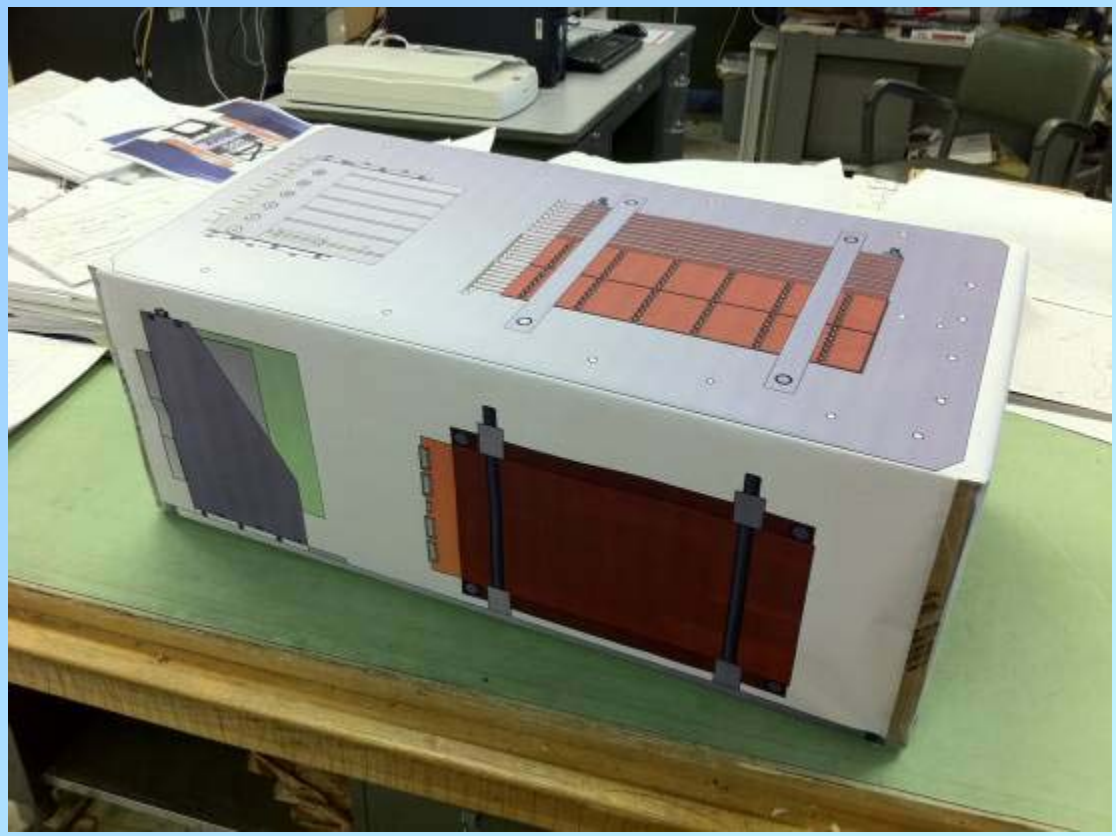
FoCal Prototype Installation Plan

- Scout possible installation locations today
- Assembly fixtures and parts design complete
- Materials received and delivered to CS
- Assembly components placed with CS
- Installation ~ end of March









EAVR Class 1 (basic representation) mockup of FoCal prototype

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Looking Ahead to the 2011 Shutdown

• Run 11 Ends	6/30/2010
• Shutdown Standard Tasks (Open wall, disassemble wall, Remove MuID Collars, Move EC to AH, etc.	7/1-7/21/2010
• Disassemble VTX services	7/11-7/22
• Remove VTX and transport to Chemistry Lab	7/25/2011
• BBC North maintenance	7/22-7/29/2011
• MuTr North Station 1 work	7/25-9/15/2010
• VTX maintenance and integration of FVTX onto VTX support structure	7/25-9/15/2010
• Install VTX&FVTX	9/16-9/30/2011
• Undefined detector subsystem maintenance and repairs	7/25-10/7/2010
• RPC1 and Absorber upgrades	9/30/2010
• Roll in EC	10/3-10/7/2010
• VTX and FVTX Services and commissioning	9/16-10/31/2010
• Prep for run 12	10/3-10/31/2010
• Run 12 cooldown	11/1/2010

Note: This schedule is for initial planning and discussion purposes only. More details for the various tasks is necessary before. A detailed schedule can be presented.

Removing, Repairing and Replacing Muon Tracking Station-1 (North)

Purpose – to install new coupling caps and terminators for anodes
- reduces cross-talk problems by about 1/3
- fixes any remaining HV problems
- does not address large pulses, which are real source of problem

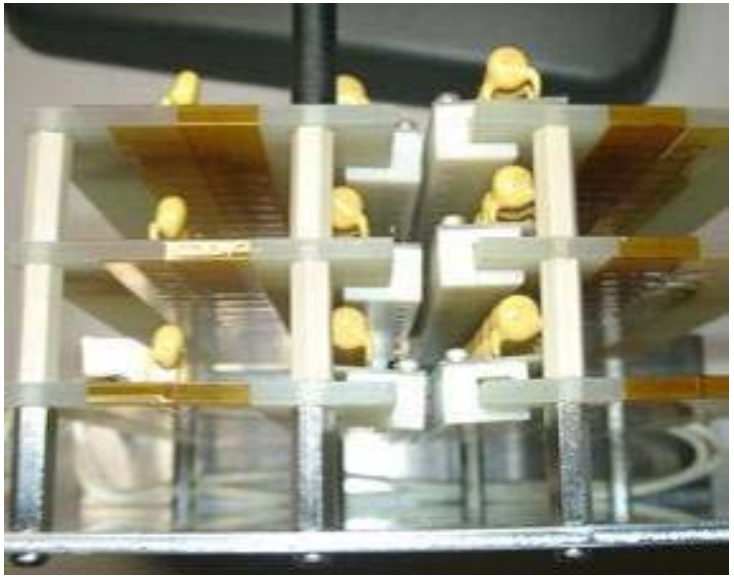
Steps:
- Preparation of needed parts & procedures
- Documentation of present connections
- Disconnect cables, water cooling, etc.
- Remove FEE plate & chambers; take chambers to lab
- Clean & install new caps and terminators
- Reinstall chambers & FEE plates
- Re-cable & test

Largest Issues:
- manpower – physicists, techs and expert soldering, students?
- fitting into shutdown - est. ~9-11 weeks de-cabled (includes 3-4 wks recable/test)
- replacing caps is difficult, even on bench
- correct re-cabling & restore low noise; testing

Other Muon Tracking worries:
- 2 bad HV chans on station-2; will there be more with caps still there?
- sta-3 cross-talk or anode termination not addressed here

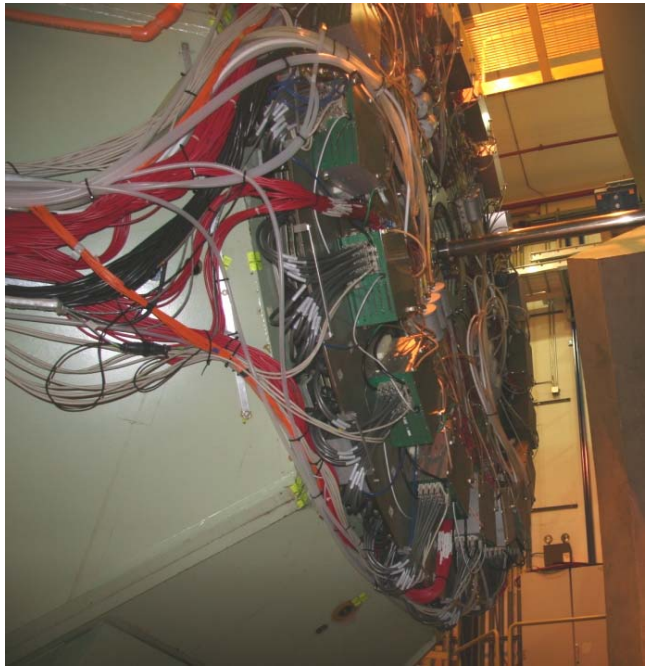
Preparation of needed parts & procedures (2 months):

- determine what caps can fit in limited space available between station-1 planes
- design, manufacture terminator cards (16/gap x 3 gaps x 8 octs = 384 + spares)
    - are Omnetics connectors available?
- purchase ceramic caps (96/gap x 3 gaps x 8 octs = 2,304 + spares)
- test procedures, esp. conformal coating removal
- test vacuum lifting fixture



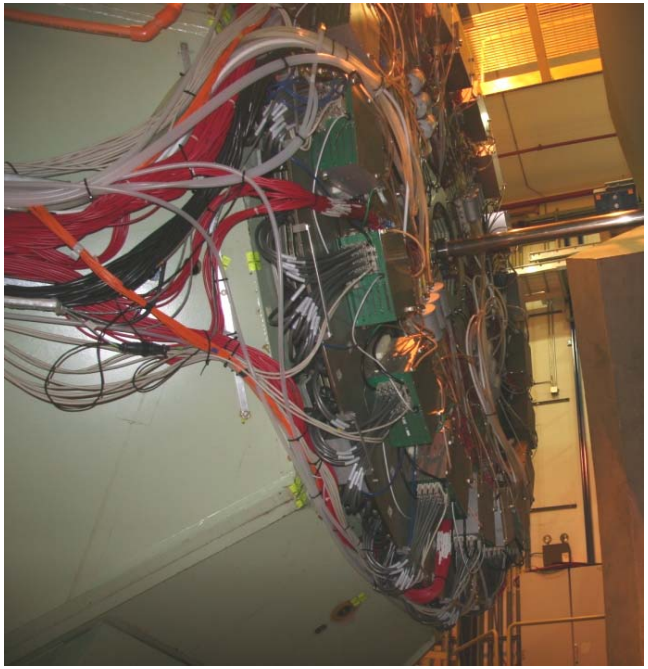
Documentation of present connections (at least 3 days):

- analog cable connection pattern for muTr FEE, muTrg FEE, chambers
- arcnet, calibration cables
- LV & HV cables
- grounding cables
- light sources
- MPC connections
- take pictures of all of above for reference
- take reference calibrations



Disconnect cables, water cooling, etc. (1 week, 3 people):

- drain water cooling system & disconnect (~20 chassis x 2+(?) tubes each)
- disconnect chamber gas and seal chambers
- arcnet (~20); calibration (8)
- Clink (60)
- Analog cables (6/chassis x 3 gaps x 8 octs = 144 + muTrg cables (~70?))
- light sources (7/oct x 8 octs = 56); MPC cables
- HV cables (24)
- grounding cables (numerous) – chamber to FEE plate, chassis-to-chassis, etc.



Remove FEE plate & chambers; take chambers to lab (1 week, 2 techs):

•FEE plates comes off in 2 halfs using crane

• chambers in 4 quadrants on kinematic mounts, labeled for reinstallation in same positions

• Need existing vacuum lifting fixtures (test before use) for chambers

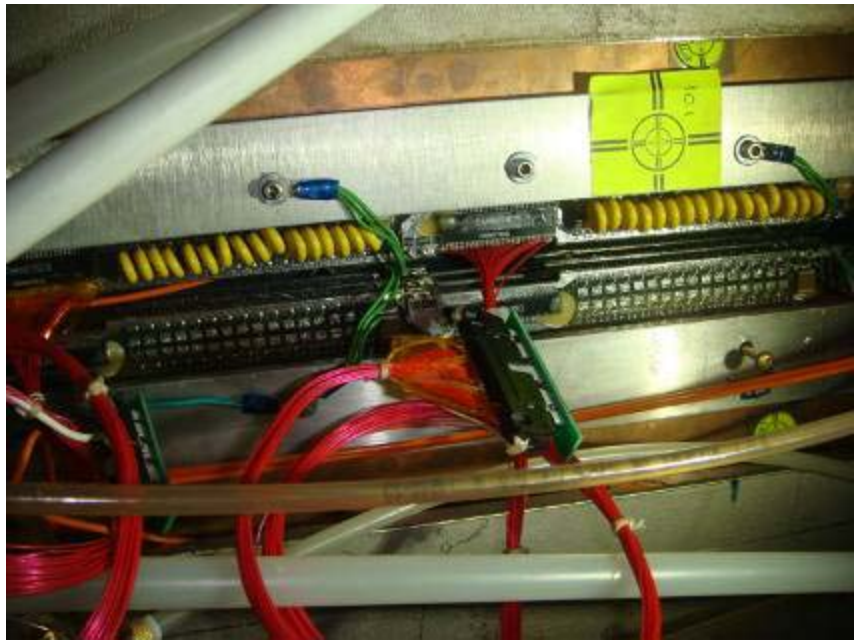
• take chambers to lab (where?) – doesn't need to be very clean (not opening chambers)

• chamber gas lines sealed; gentle transport to/from lab

• while sta-1 out, could install terminators on upstream sta-2 anodes (or even recap sta-2)?

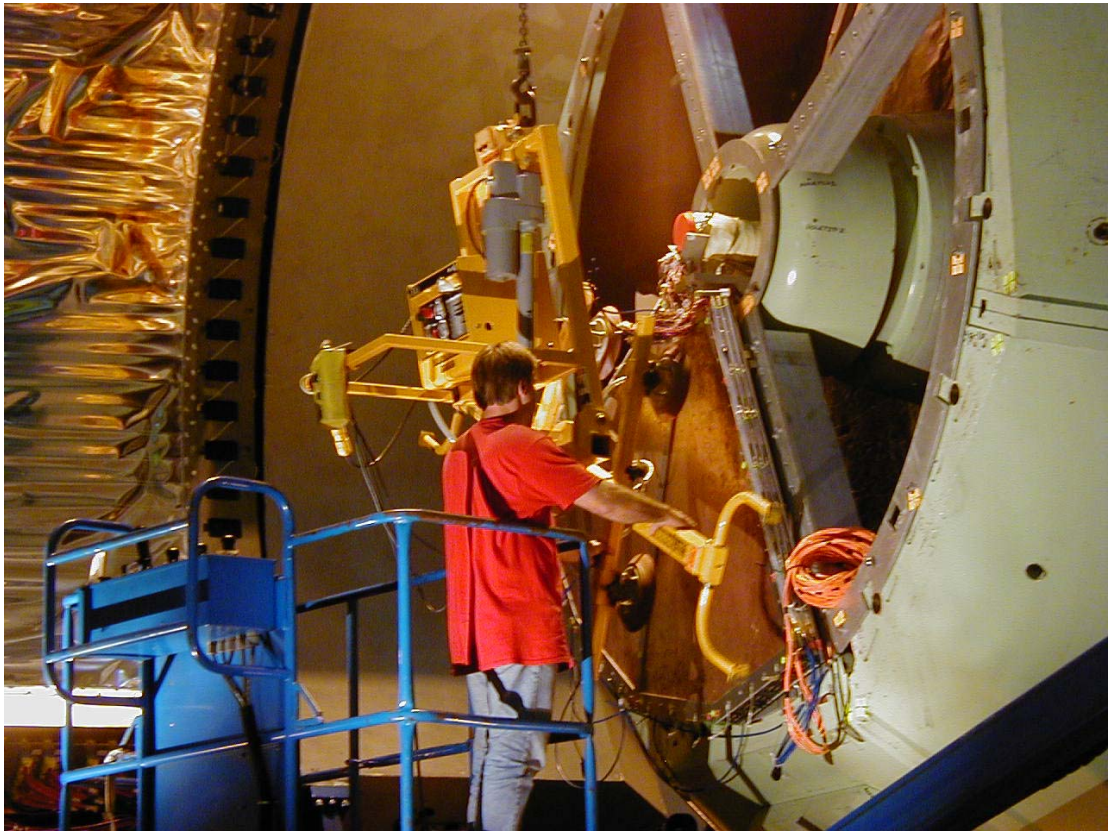
Clean & install new caps and terminators (3-4 weeks, 3+ skilled solderers):

- clean off conformal coating & clean pads (1 week)
- remove any remaining surface mount caps
- check calibration connections, terminations & repair as necessary
- install ceramic caps on all pads & test
  - #caps: 2,304 = 96/gap x 3 gap x 8 oct
  - need very skilled solderer; will take a lot of time (36 hrs x 64/hr??)
- conformal coat over new caps, test at HV
- install terminator cards (384 cards) in connectors



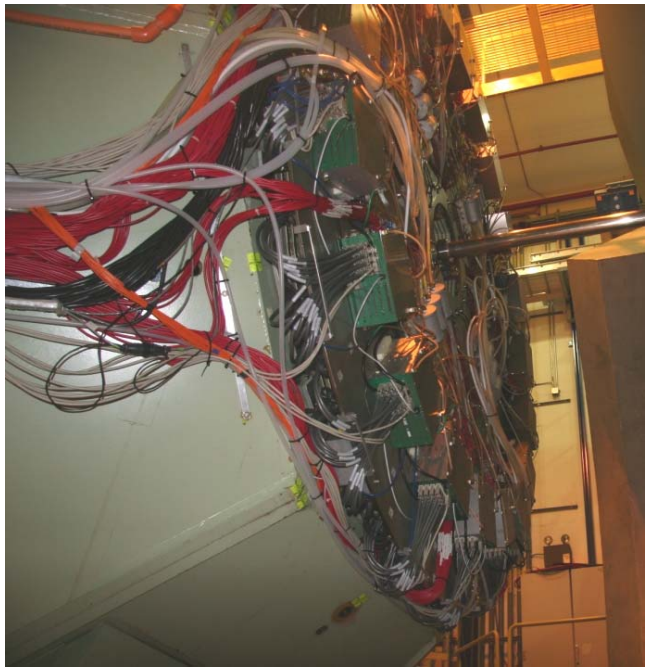
Reinstall chambers & FEE plates (1 week, 2 techs):

- 4 quadrants, can be installed one at a time as they are ready
- alignment ok because of precision kinematic mounts
- hook up gas & flow (Ar/CO2)
- reinstall FEE plates



Recable & test (3-4 weeks, assuming continuous manpower, 3+ people):

- restore readout 1st so can test other connections as they are made
  - LV, Clink, Arcnet, calibration
  - cooling
- grounding cables
- analog cables
  - test with calibration system as you go
- HV cables
- light sources
- MPC cables
- Neaten/pack cabling to fit in required space envelope
- testing:
  - individual gap/oct calibration tests to detect swapped or poorly connected cables & fix
  - noise chasing
  - HV testing at operating voltages with Ar/CO2 gas
  - optical alignment tests
  - MPC tests



Vacuum Lifting Fixture for Chambers
- stored on top of Labyrinth in Assembly Hall
- "Anver" still in business

Vacuum "pump"

Worst of the vacuum pads
(Would need to obtain at least 4 new ones - Should get these soon)


VP1
VACUUM GENERATOR
ANVER
SAFE
UNSAFE
VACUUM IN RESERVOIR
OPERATING INSTRUCTIONS
VACUUM LOSS SENSOR
POWER
OFF
VACUUM IN MANIFOLD
CENTER LIFTER ON LOAD
VACUUM RESERVOIR
DO NOT PUNCTURE

2010 Building Maintenance Issues

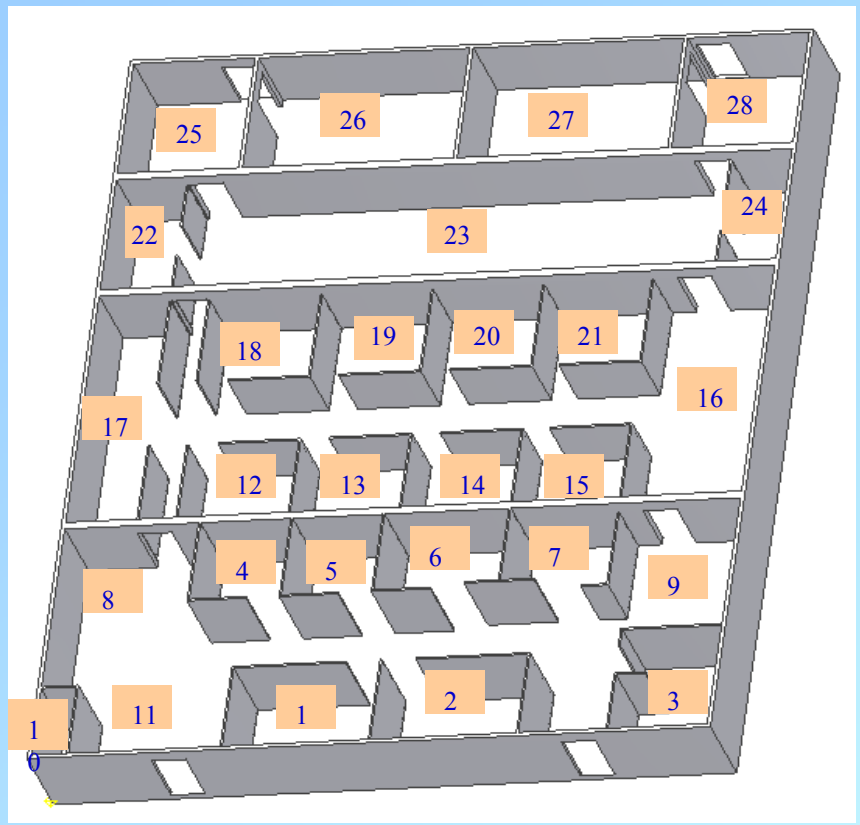
- Roof leaks in utility bathroom at northwest corner behind tech offices, over door between rack room and assembly hall, over door between control room and elect. ass'y room, southeast corner of IR and laser room.

- General maintenance for Trailer Offices (in progress)
  - -Repair replace floor tiling as needed

- Flooding in AH/ Driveway heaving

- New projector for conference room
  - Add USB Repeater & network connection
  - Need Podium

Trailer Office Space Allocation



Note: Space is assigned by subsystem/support function not by individual or institution. Name/Group in parentheses is responsible for maintaining the assigned subsystem/ support function space. Changes to allocation must be approved by PHENIX Operations management.

Space Allocation for run 11

1. Elec. Engr P. Giannotti (P.Giannotti)
2. Run Coordinator/Chief Engr (D.Lynch)
3. Documents (P. Giannotti)
4. Electrician: (M. Rau)
5. Mu Tr (M. Leitch)
6. PbSc (E. Kistenev)
7. PHENIX Engineering (D.Lynch)
8. Engineering Documents (P.Giannotti)
9. Trailer Conference Area (P.Giannotti)
10. Computer Network Cage (P.Giannotti)
11. Printing & Fax (P.Giannotti)
12. PC (A. Oskarsson)
13. VTX (J. Koster)
14. TOF Aerogel (M. Shimomura)
15. RICH (A. Takahara)
16. BBC (T. Sugitate)
17. FEM Electronics Lab (J. Haggerty)
18. DAQ /Trigger (C. Chi)
19. DAQ (C. Chi)
20. DC (V. Riabov)
21. PbGl (J. Frantz)
22. Storage (C. Biggs)
23. Analysis Center (RC/PC)
24. MPC/RPC (M. Chiu)
25. Storage (C. Biggs)
26. Ladies' Bathroom (C-A)
27. Men's Bathroom (C-A)
28. Storage (C. Biggs)

PHENIX Procedure Review Current Status:

147 Procedures Identified

87 Made Inactive (not currently in use, will require revision to re- activate if and when necessary, available for reference purposes)

9 CAD procedures relevant to PHENIX, all are up to date and available on the CAD web site

43 PHENIX approved procedures.
all are current and up-to-date

9 Proposed/Draft Procedures (never previously formalized) (3 are ready for review) These will be addressed during next few months.

Web retrieval of latest procedures now available from PHENIX Internal:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_procedures.htm

TECHNICAL SUPPORT 2011






Near the RPC Factory: Is this stuff Ours?

Safety, Security, Etc.

1. **C-AD Worker Safety Observations dated 01/19/20**

   a) **Observations**: In the Experimental Hall, a 55-gallon drum of coolant makeup is stored on top of shield block.

   Action: Please ensure the 55-gallon makeup drum is relocated off the shield block and located in a safer work area.

   b) **Observations**: There are blocked circuit breakers and horizontal work surfaces are cluttered with materials of all types. A 208 V box and control button in the Experimental Hall required a level of PPE to operate that seemed excessive. The Office Modular has a blocked breaker panel, a broken refrigerator, and one electronics work area poorly equipped with lighting.

   Action: Please ensure circuit breakers are not blocked and clutter is removed from horizontal surfaces. Please replace broken refrigerator and ensure lighting is sufficient for precise electronics work in the Office Modular.

2. **Recent Injuries**

   - **1/20/11 First Aid** An employee slipped and fell on ice. He now has discomfort on the right side of his back. The OMC applied ice and sent him home. He reported to the OMC the following day and he was released back to work without restrictions. He will report to the OMC again on Monday for a Re-evaluation.
   - **1/19/11 First Aid** An employee reported to the OMC due to knee pain. He had been repeatedly climbing a ladder the day before and felt a twinge in his left knee. The knee was still bothering him so he went to the OMC to report the incident. Ice was applied and he returned to regular duties.
   - **1/14/11 DART** An employee slipped on ice in the parking lot and fell, injuring his right hand. After examination at the OMC, the worker was transported to an off□site ER.

Safety, Security, Etc.

3. Training

Training update coming this week. (Need to correct some logic flaws in tracking program, etc.) Rigging, Forklift training needed by some.

4. Controlled Access – IMPORTANT

a) Please remind all staff that you may never let anyone through an access controls gate during Controlled Access. They must use their own controlled access key. For example if you are inside the enclosure – you can never open the gate from the inside and let them into the enclosure (the sweep should be lost in this case because MCR would not give a simultaneous release but remember that equipment can and does fail). In this case the MCR would lose track of who went into the enclosure – causing a loss of control.

b) The same applies to entry during Restricted Access. Do not open doors for others. They must use their own Access Card.

c) Never prop open an access controlled gate on your own even when the machine is down for the summer and there is a problem with the card reader. Always ask for permission from the Access Controls Group, Asher Etkin or Dana Beavis. Doing this on your own is a violation of an important requirement to protect staff from excessive radiation.

d) Any questions can always be directed to a member of the Access Controls Group or the ESSHQ Division.

Why we had a delayed access yesterday: Biology Department as an example

Where To Find PHENIX Engineering Info

At 7:25 AM ET on Wednesday, February 2, 2011 Punxsutawney Phil did NOT see his his shadow - predicting an early spring!

Super Bowl 45: My Prediction:

Steelers 24 Packers 13

Links for the weekly planning meeting slides, archives of past meeting slides,long term planning, pictures, videos and other technical info can be found on the PHENIX Engineering web site:

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm